Title: Fuelish Fact Finding

Brief Overview:

Most young adults live on a budget. As the price of goods fluctuate, budgets are harder to maintain. Understanding the cause and effect of these changes is important. Good decision-making requires analyzing data in an intelligent and discriminating manner. This lesson requires students to assemble data from a variety of sources, evaluate to find the pertinent and truthful facts, analyze the information, and present the results for interpretation. Additional activities will involve determining the causes of gasoline price fluctuation and predicting future changes.

Link to Standards:

- **Problem Solving** Students will develop and apply techniques for analyzing data in order to understand the cause and effect of real-world situations.
- **Communication** Students will use written and oral skills to share results of research and analysis.
- **Reasoning** Students will use inductive reasoning to make generalizations about data.
- **Algebra/ Statistics** Students will use algebraic and statistical methods in the analysis of data.

Grade/Level:

Grades 8-10, Algebra I/Integrated Mathematics

Duration/Length:

This activity may take 2 weeks. Group work will take 3 class periods. Additional time will depend on information access.

Prerequisite Knowledge:

Students must be familiar with graphical representations, graphing calculators, and statistical methods.

Objectives:

Students will be able to:

- calculate mean, median, mode, and line of best fit.
- explore sources of data: Statistical Abstracts, Internet, AAA.
- display collected data in appropriate graphical representation.
- write a descriptive analysis of data with justifications.
- predict future events related to collected information.

Materials/Resources/Printed Materials

- Library Resources
- Internet--use your Web browser
- American Automobile Association
- TI-82 or TI-83 graphing calculators and computers
- Interviews with local gasoline retailers

Development/Procedures:

The class will be divided into small groups. The groups decide on appropriate sources for data collection. At the next class meeting, the group assembles the data and discusses how it should be analyzed. Once the statistical calculations are done (mean, median, mode) a histogram, scatter plot and line of best fit are constructed. To complete the project, the group makes generalizations concerning the data and answers the questions on the activity sheet. The activity sheet and a large poster of the histogram and scatter plot are turned in for evaluation.

Evaluation:

Group evaluation will be based on graphical representation and accuracy of activity sheet. Individual assessment will be a quiz on statistical calculations and display, as well as the one-page description in Activity 3.

Extension/Follow Up:

1. Explore the cost of fueling a favorite car. Compare to the cost of a fuel efficient car.
2. Compare and contrast the price of gas in different regions of the country.
3. Extend understanding of statistics by learning and applying the concept of standard deviation.
4. Explore fluctuating prices of other consumer goods such as cereals, CD's, and athletic shoes.

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Activity Sheet 1
Title: Fuelish Fact Finding
Sources:

_____

_____

_____

_____

Data: **Month** **Price**

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

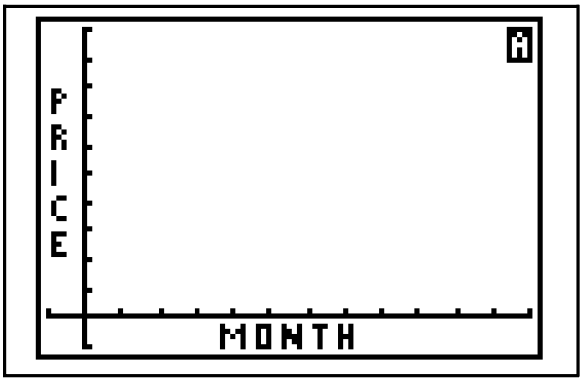
Enter above data into STAT L1 and L2 into your TI-82 or TI-83. Then calculate the following:

Calculations:

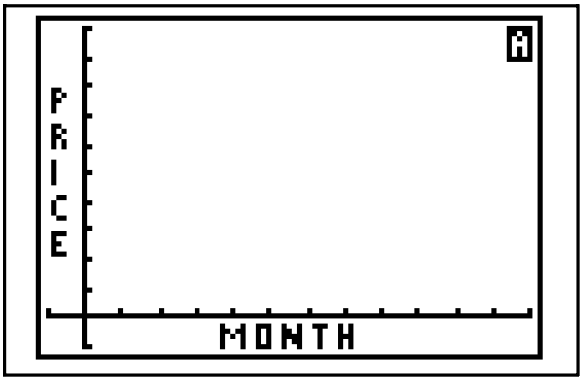
Mean Median Mode

_____ _____ _____

Histogram: Use your TI-82 or TI-83 to graph a histogram using data from L1 and L2. Copy display onto grid below:



Scatter Plot: Use your TI-82 or TI-83 to graph a scatter plot using data from L1 and L2. Copy display onto grid below:



Conclusions:

1. Which graph is the best representation of the data?_____

   Give a justification for your choice. _____

   _____

2. Predict gasoline price changes from January to June 1997. _____

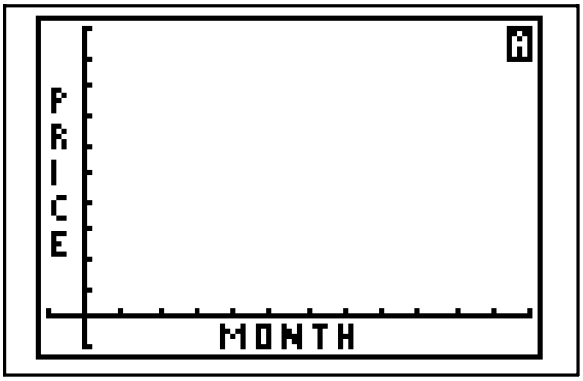
   _____

3. List possible causes._____

   _____

Activity 2

Utilize the scatter plot from activity one in combination with your TI-82 in order to find the best fit line. Graph this line onto the scatter plot and copy results on the grid below:



Write the equation for the best fit line:_____

_____

Use the equation to predict the price in June, l997._____

Explain how this comparison agrees/differs with the predictions in activity one.

_____

_____

Activity 3

Write a one page paper describing research done for the unit. Include sources, statistics that you calculated and the conclusions you made. This paper may be used as a writing sample for your portfolio.